



Waves' Transform Bundle

by [Barry Rudolph](#)**FIELD TEST**[Back To The Home Page](#)

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We've always thought of Waves as a manufacturer of solid, straightforward studio tools, but recently, the company has branched out with some really creative sound-shapers. The aptly named Waves Transform bundle offers four all-new plug-ins for innovative audio processing through pitch and time alteration. The package includes SoundShifter, a pitch/time expander/compressor; TransX, which changes the temporal expiry of percussive sounds' attack portion; Doubler, which is a multitap delay with pitch modulation that maintains the original length of sounds even with radical detuning; and Morphoder, a full-featured vocoder with eight-voice synthesizer and formant correction.

MY RIG

I installed and tested the Transform bundle on two different computer DAWs: Pro Tools|HD 3 running on a Mac equipped with 10.2.8 and OS 9.2; and a PC VST 2.0/DirectX host running XP Pro and Nuendo 2.1. My testing was mostly confined to the Mac OS X TDM rig at 48 or 96 kHz. Under Nuendo, not all of the VST and DirectX versions are fully functional. Variable I/O is required for parametric SoundShifter and graphic SoundShifter to work offline, and VST/DirectX does not (at this time) support sidechain, causing Morphoder's operation to be limited to mono only by using one track of a stereo pair as modulator and the other as carrier.

Transform runs under Waveshell 4.0 but will not coexist with earlier versions of Waveshell, so earlier Waves plug-ins must be upgraded. Check this before installing in Mac OS 9, because 4.0 will install over 3.0, causing your 3.x plug-ins to not show up. However in OS X, Waveshell 3.5, which I used for all of my Waves Renaissance plugs, ran fine alongside Waveshell 4.0.x. Both the Mac and PC installations went fine, including the new Waveshells and the iLok dongle Mac extension. PC users can download an iLok driver at www.ilok.com; Nuendo 2.1 required a newer Waveshell version from www.waves.com.

DOUBLE YOUR FUN

The Doubler plug-in comes in mono and stereo versions with either two or four outputs called voices. I used it both as an insert plug-in and, to save DSP, as a send and return effect similar to a reverb. As an insert, you can keep the track's original timing or "align" it to the inherent

latency of the plug-in. With align on, you can set any of the voices' delay time to 0 ms; otherwise, the minimum delay is 7 ms with the Range set to 80 Hz or 24 ms when set to 20 Hz. Range sets the detuning range of the voice outputs. Shifting lower-frequency instruments such as a bass guitar requires higher latencies.



Doubler

Doubler offers many adjustable parameters that make the effect sound more like an actual double or quadruple-tracked vocal or guitar. By slightly detuning the different voices by a few cents (up to +/- 100 cents) and panning them left and right, you can go anywhere from a wide "harmonizer" multivoice effect to a very tight monaural double track. Using Doubler to process background vocal tracks makes them sound like more people are singing--if you don't play this effect too loud--and I think is this processor's best effect. I preferred the tighter settings: 1 to 3 cents up and down, less than 5 ms of delay and panned narrowly. I used the Align mode and slid the original track earlier to compensate for latency. Maintaining the source audio's original length is most noticeable with wide detuning--there is no hang over, which is especially good for the octave-down mode. The octave's quality is not designed to be a featured voice, but sounds best when used as a shadow. I used two octave-down voices panned left and right with 0ms delay on a standard-tuned metal guitar track, making it sound like a drop tuning.



TransX

ATTACK!

TransX reshapes the attack transient of any percussive sound by detecting the rise time of a sound's waveform and then boosting or reducing its level for that moment. I found TransX to be excellent for snares, kicks, drum mixes, loops and bass guitar tracks. I also used it to reduce the amount of snare drum "hit" in my room mics, letting the closer mics on the snare predominate the overall drum mix: mighty, big and

roomy-sounding drums, but also very present.

TransX comes in Wideband and Multi-Band versions. Wideband uses less DSP and works remarkably 80% of the time by detecting the attacks of the total program. Wideband successfully fixed up a final mix by pulling up the snare drum's attack; this could be a mastering engineer's newest secret weapon. Multiband, with its Waves C4 crossover design, splits the sound into four adjustable bands. I could then modify any drum's whole spectral makeup, perhaps adding more punch in the lower frequencies or removing low-end wallop without making the drum thin-sounding. This plug-in works wonders on any loop.

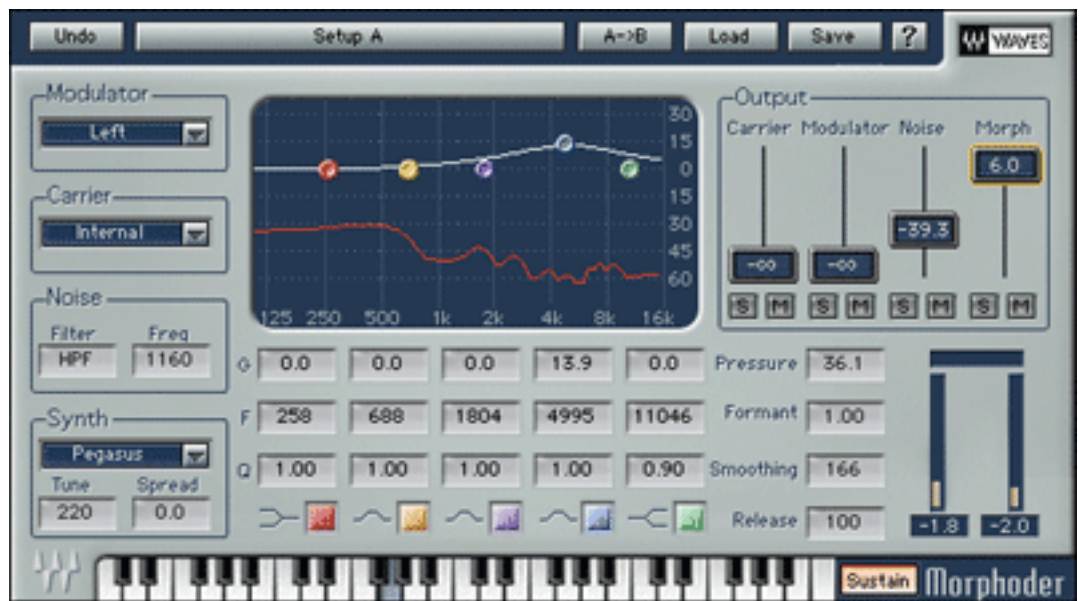
The controls are simple to use, and there is a good group of factory preset "training wheels" to get you started. The four main parameters are Duration (to set the length of the attacks); Sensitivity, which sets the plug-in's level threshold; Range, for setting the amount of gain change; and Release (to adjust the time it takes the gain change to return to the original level).

MORPHING VOCODER

Morphoder is a full-featured stereo vocoder--a cross between a processor and a musical instrument and by far my favorite of the bundle. I found so many good ways to use this plug-in: subtly mixed back to create a dynamically changing guitar double track, or right up front for eerie, otherworldly a cappella vocals during a dance breakdown section.

When Morphoder is instantiated on a keyboard or guitar track, that track becomes the carrier--the musical component to be modulated by another track. The default carrier is the included eight-voice synth with an onscreen, four-octave keyboard and 10 factory sounds ready to go. To play this synth, click on the keys that you want-- you can use automation to build chords, etc. but, unfortunately, there is no way to route your MIDI controller, like a synth plug-in. Waves plans to make this available soon via a MIDI upgrade through the Waves Update Plan.

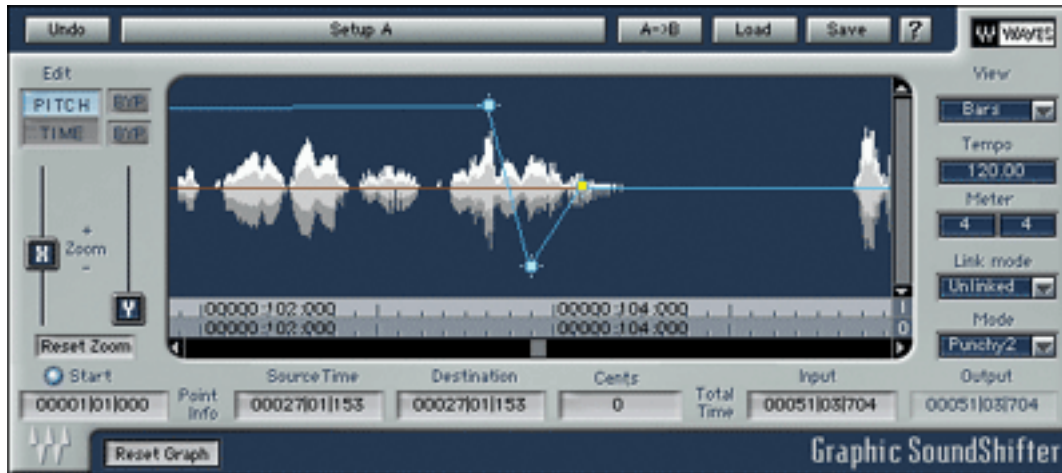
The modulating track is routed to the key input, like a key source for a noise gate. Sending on a bus, I could mix and match different modulation sources from across my mix. Morphoder uses a fully adjustable 5-band dynamic filter to track the modulator's frequency constituency and instantaneous level, and then conforms or "morphs" the carrier's spectral content and dynamic shape to it. I found that getting good vocoder sounds was easier and much faster than using hardware units. Many subprocesses--some little-known engineer/producer "tricks" to good vocoder sound--are either automatic or provided within Morphoder.



Morphoder

For example, in addition to more advanced filter control, frequency, shape, Q and level there is Pressure, a way to confine the dynamics of the modulator signal for better Morph intelligibility. Higher Pressure settings were especially necessary when using a vocal track as modulator. The Formant Ratio control shifts the frequency contour of the modulator up or down before application to the carrier. Shifting up or down increases brightness and clarity by better matching the carrier and modulator's timbres.

Morphoder has a 4-channel output mixer that allows you to adjust the level of the carrier, modulator, morphed signal and noise. Noise, when used with a vocal modulator, traces the envelope of the vocal with wideband noise. Mixing in a little enhances intelligibility; using a lot brings out the Ghost In the Machine.



SoundShifter

SOUNDShIFTER

SoundShifter has three main components: SoundShifter Pitch, a real-time pitch changer that is good for statically correcting pitch; Graphic SoundShifter, for graphically "drawing" dynamic pitch and/or time changes on a graph; and Parametric SoundShifter to

change pitch and/or time of any music track or finished mix.

Parametric SoundShifter is a powerful "meat and potatoes" DSP with two main controls: Time Ratio and Pitch Ratio. Both time and pitch can be shifted up and down to become twice as fast or slow or an octave up or down from the original. In TDM hosts, I found that it was easy to use this plug-in, with offline processing time approximating real time. Sound quality is excellent, and there are absolutely no problems using this plug-in for moderate up or down changes. I had no pitch glitching, clicks or timing bumps, even with big changes of over three semitones or at 15 bpm. This feature alone could pay for the Transform bundle in one session.

Designed to be familiar and immediately useful in all facets of the post-production industry, parametric SoundShifter relates a selection's time length in six ways: time, tempo, bars/beats, samples, SMPTE and feet/frames. Windows show the original source time and the destination time, or where you'd like the music selected to end. Nomenclature for pitch is in familiar semitones/cents, musical intervals (minor 2nd, major 3rd, etc.), and a pitch center referenced to the A = 440 Hz standard.

After selecting a region of music and opening parametric SoundShifter, any of these ways of defining a track's pitch or length can be used to modify its pitch and/or time. You can also strap the time and pitch functions together via the Link button.

SoundShifter Pitch is a real-time pitch corrector that maintains the music's original length. It

uses the same interface as the Pitch section of parametric SoundShifter and introduces a fixed latency that can be dealt with in Pro Tools. Graphic SoundShifter is the graphical version in which, after a selected region is displayed, you can put break points across the waveform where you want changes in pitch or time. Whether for an occasional tuning or timing fix or extensive vocal tuning and correction, both these plug-ins worked and sounded great.

I'M TRANSFORMED

The Transform Bundle is a creatively stimulating collection of technological marvels with pitch and time transformational abilities that are not easily obtained by existing software or hardware. As a serious utility, I especially liked SoundShifter with its easy-to-use GUI for simple control of complicated, simultaneous processes. For fun, I liked Morphoder because of the way it adds its signature to musical performances. The group is part of the Waves Diamond Bundle or can be bought separately. The TDM version, which includes native versions (VST, MAS, DirectX, etc.), sells for \$1,800; the native-only version is \$1,200.

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Check Your Platform

Transform comes in versions for TDM, AudioSuite, RTAS, VST, MAS, Audio Units, DirectX, and for both Mac and PC platforms. To find out if your system meets the bundle's requirements, download the compatibility report at:

www.waves.com/htmls/prods/transform/Transform_compatibility.pdf.

All four plug-ins feature full automation and run up to 48 kHz and 24-bit, but check:

www.waves.com/3_5_hd.htm

for platforms and plug-in hosts that support higher sample rates. Transform is part of Waves' V. 4 product line and available with the new Waves Update Plan (WUP), giving you access to version updates for a full year on all of the products registered in your account.



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